

leaching the flourine reduced source material to solubilize at least a portion of the metal values contained therein and generate an aqueous solution comprising said solubilized metal values and a solid phase at least partially depleted in the solubilized metal values; and selectively extracting a solubilized metal value from said aqueous solution.

10. (Once amended) A process for selectively extracting [a] scandium values [metal value] from a source material which includes solubilizable scandium [metal] values, the process comprising:

leaching the source material to solubilize scandium [metal] values contained in the source material and generate an aqueous solution comprising said solubilized scandium [metal] values and a solid phase at least partially depleted in scandium; and selectively extracting a scandium [metal] value from said aqueous solution.

REMARKS

Claims 1-20 are pending in this application and stand subject to a restriction requirement. Claims 1 and 10 stand rejected under 35 USC 112, second paragraph. Claims 1 and 10 also stand rejected under 35 USC 102(e) or in the alternative 35 USC 103. Claims 2-9 and 11-20 have been withdrawn from consideration.

Claims 1 and 10 have been amended to better point out and distinctly claim the subject processes.

This response addresses issues raised by the Examiner and is believed to place the application in condition for allowance.

Response to Restriction Requirement and Election of Species Requirement

Applicants respectfully submit that their past responses to the Restriction Requirement have been responsive.

In the First Office Action dated May 28, 1997, the Examiner required Applicant to elect a single, ultimate method species specifying the metals desired to be recovered and the order of recovery thereof (May 28, 1997 Office Action, pages 3-4, para. 4). In response, in their Amendment and Response to Office Action mailed November 26, 1997, Applicants elected the “processes for selectively extracting scandium metal values” as the species for prosecution on the merits and stated that “[n]ew claims 10-15 are directed to the elected species. . . . [and] [c]laims 1-9 are believed to be generic” (Amendment and Response to May 28, 1997 Office Action, page 15).

The Examiner responded with a Second Office Action dated February 17, 1998, stating that Applicants election of Scandium as a single ultimate species of method . . . is not fully responsive because scandium is not a method. (Office Action (Second) dated February 17, 1998, at page 2, para. 2). The Examiner also stated that “in the listing of claims readable on the elected species, claim 2 has nothing to do with scandium, e.g.” (Id.) The Examiner found that since “it [claim 2, applicants assume] is neither an elected species nor generic thereto, it would not be readable on the elected species.” (Id.) The Examiner suggested that “should applicant desire to elect the subject matter of claim 10 as a single ultimate species of method, then claim 11 which recites additional limitations would not be elected.” (Id.)

Applicants filed a responsive paper mailed March 17, 1998, traversing the Examiner's position that election of scandium as a single ultimate species constituted a non-responsive election (March 17, 1998 Response to the Notice of Informal / Nonresponsive Response, page 4).

In the alternative, Applicants elected the following method species for further prosecution:

A process for selectively extracting a scandium metal value from a source material comprising:

reacting the source material with a first mineral acid for a period of time, and under temperature and pressure conditions sufficient to generate a reacted material comprising scandium metal values and liberate a portion of any fluorine metal values present in the source material;

leaching the reacted material in a second mineral acid to generate an aqueous solution comprising scandium metal values;

contacting said aqueous solution with an organic medium which includes a dilutent and an extractant, said dilutent being immiscible with said aqueous solution thereby producing an organic phase comprising scandium metal values and a raffinate at least partially depleted in scandium metal values;

contacting said organic phase with a scandium stripping agent to form a scandium phase comprising at least a portion of the scandium metal values present in said organic phase; an additional aqueous phase comprising said scandium stripping agent; and a final organic phase at least partially depleted in scandium metal values and a solid phase at least partially depleted in scandium metal values; and

recovering scandium metal values from said scandium phase;
wherein:

the source material comprises an ore residue which includes scandium metal values;

the first mineral acid comprises sulfuric acid;

the second mineral acid comprises sulfuric acid;

the organic medium comprises DEPHA (Di 2-ethylhexylphosphoric acid) as an extractant and an aliphatic non-soluble C₉-C₁₆ hydrocarbon as a dilutent; and

the scandium stripping agent comprises sodium hydroxide.

March 17, 1998 Response to the Notice of Informal / Nonresponsive Response, pages 4-5. By electing a method and indicating a specific metal value, source material, first and second mineral acids, organic medium, diluent and scandium stripping agent, Applicants were fully responsive to the Examiner's request for a method species. In this regard Applicants respectfully submit that they have elected a species, not a subgenus of the metal value, source material, first mineral acid, second mineral acid, organic medium, diluent and scandium stripping agent. Further, Applicants respectfully resubmit that (in view of the election) claims 10-19 are generic and claim 20 is readable on the elected species. See, Id., at page 5.

In the present Office Action, the Examiner finds fault with the fact that Applicants' election "is in the manner of a claim, despite the examiners previous comments" (Final Office Action, page 2, para. 1). Applicants submit that their election constitutes a proper response to the restriction requirement insofar as the election of a process species entails a description of the process, and the use of a "claim" provides a format which is readily understandable.

Applicants' election constitutes a "single ultimate (method) species" -- *a process for selectively extracting a scandium metal value from a particular type source material* -- limited extraction of a single metal value, *scandium*. Claims 10-19, all dependent on claim 10 ("A process for selectively extracting a scandium metal value"), are generic to the elected method and accordingly should not have been withdrawn from consideration. Claim 20 reads on the elected species.

The Examiner cites Applicants as failing to “recite any specific source material” (Final Office Action, page 2, para. 1). Applicants respectfully point out the language in their description of their election: “*the source material comprises an ore residue which includes scandium metal values*” in which Applicants distinctly recite the specifics of the source material. The Examiner also states that “in the first leaching step, a portion of any fluorine values may be liberated, while there is no mention thereof in the elected second leaching step” (Final Office Action, page 2, para. 1). Applicants fail to follow the Examiner’s point, but note that the first and second mineral acids are the same (sulfuric acid) in the elected method species and believe that separating the first and second steps provides clarity. Applicants also refer the Examiner to page 2, lines 9-12 of the specification.

The Examiner also states his belief that “[c]laims 11-20, do not appear generic or specific to the elected species” because, according to the Examiner: “in claims 11, 14 and 16, HF is liberated in the second leach step, not the elected first leach step. . . . [i]n claim 15, the second leach step is a water leach, contrary to the elected sulfuric acid leach” (Final Office Action, page 2, para. 1). Applicant’s are aware of these differences, but disagree that this distinction renders claims 11, 14 and 16 outside the elected species. A process according to Applicants’ invention comprises an initial leaching step for “separating and removing fluorine values from the starting material” followed by a second leaching of “the remaining material to solubilize metal values contained in the remaining material and generate an aqueous solution.” That certain claims contain an initial step prior to the initial leaching step, does not render such claims outside the elected species. In claim 15, Applicants point out that the elected acid leach is present (see lines 7-10).

For the foregoing reasons, Applicants' submit that the Final Office Action improperly fails to respond to Applicants' election and improperly designates claims 2-9 and 11-20 as withdrawn. Applicants respectfully request that the Examiner reconsider Applicants' election and grant Applicants appropriate examination of the elected claims (which are within their elected species), claims 10-20.

Claims 1 and 10 -- 35 USC 112, second paragraph

The rejection of claims 1 and 10 under 35 USC 112, second paragraph is respectfully traversed.

Applicants have amended claim 1 to provide antecedent basis for "the fluorine reduced material".

With respect to the terminology "selectively extracting a metal value", Applicants respectfully submit that this terminology is clear and definite, particularly in view of the description provided in the present Specification. Applicants processes permit the selective extraction of a particular metal value from a solution comprising one or more solubilized metal values. For example, scandium values may be selectively extracted from a solution comprising scandium values and other metal values. Thus, Applicants respectfully submit that "selectively extracting" as utilized in claim 1 is clear.

Applicants have amended claim 10 to remove the term "metal" from the phrase "scandium metal value" so that claim 10 refers to "scandium values". The Examiner is thanked for the helpful suggestion in this regard.

For these reasons the Examiner is respectfully requested to withdraw the rejection of claims 1 and 10 under 35 USC 112, second paragraph.

Applicants believe the claims recite an invention patentably distinct and non-obvious over the present record.

Conclusion

A favorable Office Action is respectfully solicited. The Examiner is invited to contact the undersigned at 336.607.7315 to discuss any matter relating to this application.

Respectfully submitted,

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